

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: )  
Alonzo M. BURNS et al. )  
Application No.: 09/228,954 ) Group Art Unit: 1771  
Filed: January 12, 1999 ) Examiner: C. JUSKA  
For: A SURFACE COVERING BACKING CONTAINING POLYMERIC  
MICROSPHERES AND PROCESSES OF MAKING THE SAME

**DECLARATION**

Assistant Commissioner for Patents  
Washington, D.C. 20231

August 22, 2002

Sir:

I, Peter Desai, do declare and state as follows: I graduated from Philadelphia College of Textile and Science and received a bachelor's degree in 1976 in Textiles.

From October 1986 to March 2001, I was employed by Mannington Carpets, Inc. (production/research and development facility in Calhoun, GA), and during that time I was engaged in production of carpets, as well as research and development concerning carpets in general, and surface coverings containing polymeric microspheres in particular. Since April 2001, I have been working as a consultant to Mannington Carpets, Inc.

I am also one of the named inventors in the above-identified application and I am familiar with the Office Action dated March 25, 2002, (paper number 21) received in the above-identified application, as well as the references cited therein regarded by the Examiner as rendering the present invention obvious.

This Declaration is submitted pursuant to 37 C.F.R. § 1.132, so that the Examiner can better appreciate and understand the unexpected superiority of the present invention over the technology of the cited references, and the differences between the various types of carpets that are currently used in the United States.

### DISCUSSION

Carpet comes in various types, such as 12 ft. broadloom carpets, 6 ft. wide roll carpets, and modular carpet tiles. Modular carpet tiles are gaining a greater share of the market for carpets in the United States for a variety of reasons, and therefore new types of carpet tiles and methods for making these tiles, are in particular demand.

From reading the Office Action, the Examiner takes the position that broadloom carpets and modular carpet tiles are interchangeable or are obvious versions of each other. I respectfully disagree and in my opinion, any person with experience in the carpet industry would disagree with this position. The technologies and problems associated with carpet tiles are radically different from broadloom carpets. In other words, modular carpet tiles are structurally very different from wall-to-wall or broadloom carpets. For instance, stabilizing membranes are used in carpet tiles in order to provide the necessary dimensional stability. In fact, there are standards for dimensional stabilities that must be met in order to meet performance criteria of modular carpets. This dimensional stability of broadloom carpets is significantly lower compared to that of modular carpets, hence broadloom carpets are installed with permanent adhesives. In addition, due to environmental conditions, such as temperature and humidity changes, a carpet tile must be capable of not significantly expand or contract; otherwise, the carpet tiles would have gaps or peaking at seams. Broadloom carpets do not have the same problems because they are installed

with very aggressive permanent adhesives. Also, unlike broadloom carpets which are installed with adhesive, nails, and/or staples, many carpet tiles are installed with no adhesive or with a releasable adhesive, which again requires that the carpet tile be very dimensionally stable.

Modular carpet tiles have a number of significant advantages over other types of carpets. For instance, all carpets show wear in high traffic areas. Often, the bulk of the carpet will still be serviceable, but the presence of significant wear in a high traffic area will require the replacement of the entire carpet. By contrast, carpet tiles are removable and can be replaced in increments. In fact, carpet tiles can even be rotated, just like automobile tires, with worn tiles relegated to less critical areas. The option of removing or replacing individual carpet tiles is a significant advantage of carpet tiles, and is of particular importance in "open office" situations, in which the floor plans must be rearranged to accommodate changes in office space and number of workers. Additionally, modular tiles simplify access to utilities, since the tiles can be released and reinstalled many times because they are dimensionally very stable which means they can be installed with thin layer of pressure sensitive releasable adhesive. This is in direct contrast to broadloom carpets, which are permanently affixed to the floor, and only can be removed with great difficulty. Sometimes this removal so damages the carpet that it cannot be reused, or at least has been altered unfavorably in appearance. These factors are well known in the industry. There is a clear recognition in the carpet industry that modular or tile carpet is functionally and structurally different from roll carpet or wall to wall carpet. In fact, some building codes even require the use of modular carpet tiles in commercial or industrial settings, so as to permit access to utilities and electrical installations.

From the discussion above, one can see that modular carpet tiles offer significant advantages over other types of carpet, and this is reflected in the greater market share being

assumed by modular carpet tiles. However, producing satisfactory modular carpet tiles at acceptable cost is not straightforward.

Modular carpet tiles simply cannot be manufactured from 12 ft. broadloom carpets. While it might appear reasonable to a person without a thorough grounding in carpet making technology to assume that one could cut carpet tiles from a larger piece of carpet, such as a 12 ft. broadloom carpet, this approach would fail, for the following reasons.

All carpets are subject to lateral stresses, pressures and varying ambience conditions, which could cause dimensional change in carpets during normal usage. In 12 ft. broadloom carpets, these stresses, pressures and ambient changes are spread across the wide surface of the carpet and since broadloom carpets are installed with permanent adhesives the dimensional changes are minimized to acceptable levels. By contrast, each 18"x18" carpet tile is isolated and must bear the entire stress or strain and change in ambient conditions that is applied to it. Additionally, the edges of the carpet tile cannot lift or shift appreciably, even under heavy impact or torsion and changing ambient conditions, even though tiles are installed with releaseable pressure sensitive adhesives otherwise the uniform appearance and functionality of modular carpets will be adversely affected.

Because of this, dimensional stability and impact resistance are of far greater concern in modular tiles than in other types of carpet. In other words, modular carpet tiles must be significantly more resistant to impacts and stresses than a corresponding broadloom carpet, since each carpet tile is isolated, and because each tile must stay in place even under heavy impact, without being able to dissipate the stresses and strains applied to it to a surrounding region, as would be the case with a broadloom carpet.

If one attempted to cut carpet tiles from a conventional broadloom carpet, the tiles would quickly fail, since they would lack the structural strength and dimensional stability necessary to withstand the applied stresses and impacts. In order to have an acceptable service life, modular carpet tiles must have superior physical and structural characteristics, and also must be formed by different methods, than broadloom carpets.

Therefore, methods that can be used to provide the special characteristics necessary to modular carpet tiles are in particular demand, since these types of tiles are assuming increasing importance from the commercial standpoint. In that respect, the claimed invention has several advantages over previous technology. For instance, the carpet tiles can be prepared in a one-step operation. Unlike other technologies, which require making a foam on separate process and then lamination, the claimed invention can be prepared in a single step, in which the foam is casted on the back of the carpet directly. This technique offers several advantages. First, the one-step method offers substantial advantages in terms of cost and efficiency, which reduces the overall cost of the finished product. For instance, one would not need a separate machine to make foam and then another machine to laminate foam to carpet. Additionally, the blowing rates and conditions suggested in the cited references would not produce a uniform product and would also require higher temperatures. In other words, the claimed invention creates better uniformity in the final product at lower temperatures. Both these factors are highly important in a manufacturing process.

Second, the casted product offers improved delamination strength. Testing performed by Mannington shows that carpet tiles produced by the casting method are extremely resilient to delamination. In fact, carpet tiles produced by the casting method cannot be delaminated without

large amounts of physical force. In other words, the force necessary to produce delamination must be so extreme that the tiles are completely destroyed.

As noted above, one of the principal differences between carpet tiles and conventional broadloom carpets is the need for enhanced dimensional stability and resilience in carpet tiles. The present method of casting the foam on the backing leads to tiles having improved strength and dimensional stability, and these characteristics are of paramount importance for carpet tiles.

Therefore, it can readily be appreciated that products and methods described in the present application constitute a beneficial advance over the prior art, and are a particular advantage of the claimed invention.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and any such willful false statement may jeopardize the validity of the application or any patent issuing thereon.

Date: 8/22/02

Peter Desai  
Peter Desai, Title

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### DECLARATION

Assistant Commissioner for Patents  
Washington, D.C. 20231

August 23, 2002

Sir:

I, R. Carroll Turner, do declare and state as follows: I graduated from North Carolina State University and received a degree in Textile Technology in 1964.

Since February of 1989, I have been employed by the Carpet and Rug Institute, in the technical services area. The Carpet and Rug Institute is an industry trade <sup>organization</sup> and is dedicated to disseminating technical knowledge regarding carpets and similar items, as well as better informing the public and various governmental agencies about various aspects of the carpet industry, including carpet-making technology.

### DISCUSSION

Carpet comes in various types, such as 12 ft. broadloom carpets, 6 ft. wide roll carpets, rugs, and modular carpet tiles. Modular carpet tiles are gaining an increasing share of the market for carpets in the United States, for a variety of reasons, and therefore new types of carpet tiles, and methods for making these tiles, are in particular demand.

Modular carpet tiles are structurally very different from wall-to-wall or broadloom carpets. For instance, stabilizing membranes are used in carpet tiles in order to provide the necessary dimensional stability. In fact, there are standards for dimensional stability that must be met in order to satisfy commercial and residential users. This dimensional stability of broadloom carpets is of lesser significance than that of modular carpets. In addition, due to environmental

conditions, such as temperature and humidity changes, a carpet tile must be capable of not significantly expanding or contracting; otherwise, the carpet tiles would have gaps or buckle. Broadloom carpets do not have the same problems due to the large surface area. Also, unlike broadloom carpets which are installed with adhesive, many carpet tiles are installed with no adhesive or with a releasable adhesive, which again requires that the carpet tile be very dimensionally stable.

Thus, modular carpet tiles have a number of significant advantages over other types of carpets. For instance, all carpets show the effects of wear in high traffic areas. Often, the bulk of the carpet will still be serviceable, but the presence of significant wear in a high traffic area will require the replacement of the entire carpet. By contrast, carpet tiles are removable and can be replaced in increments. In fact, carpet tiles can even be rotated, just like automobile tires, with worn tiles relegated to less critical areas. The option of removing or replacing individual carpet tiles is a significant advantage of carpet tiles, and is of particular importance in "open office" situations, in which the floor plans must be rearranged to accommodate changes in office space and number of workers. Additionally, modular tiles simplify access to utilities, since the tiles can be removed without harming them. This is in direct contrast to broadloom carpets, which are permanently affixed to the floor, and only can be removed with great difficulty. Sometimes this removal so damages the carpet that it cannot be reused, or at least has been altered unfavorably in appearance. These factors are well known in the industry. In fact, some building codes even require the use of modular carpet tiles in commercial or industrial settings, so as to simplify access to utilities and electrical installations.

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All carpets are subject to stresses and pressures during normal usage. In 12 ft. broadloom designs, these stresses and impacts are spread across the wide surface of the carpet, thus damping the effect of any particular stress or strain. By contrast, each carpet tile is isolated and must bear the entire stress or strain that is applied to it. Additionally, the edges of the carpet tile cannot lift or shift appreciably, even under heavy impact or torsion, otherwise the uniform appearance of the carpet will be affected.

Because of this, dimensional stability and impact resistance are of far greater concern in modular tiles than in other types of carpet. In other words, modular carpet tiles must be significantly more resistant to impacts and stresses than a corresponding broadloom carpet, since each carpet tile is isolated, and because each tile must stay in place even under heavy impact, without being able to dissipate the stresses and strains applied to it to a surrounding region, as would be the case with a broadloom carpet.

If one attempted to cut carpet tiles from a conventional broadloom carpet, the tiles would quickly fail, since they would lack the structural strength and dimensional stability necessary to withstand the applied stresses and impacts. In order to have an acceptable service life, modular carpet tiles must have superior physical and structural characteristics, and also must be fabricated by different methods, than broadloom carpets.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and any such willful false statement may jeopardize the validity of the application or any patent issuing thereon.

Date:

August 23, 2002

R. Carroll Turner

R. Carroll Turner

Technical Services Manager

Carpet and Rug Institute